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PATENT SPECIFICATION



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446,972

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Complete Specification Accepted: May 8, 1936.

PROVISIONAL SPECIFICATION

Anti Bang or Rattle Door Stop

I, JAMES WILLIAM CLAY, 55, Commercial Road, Bournemouth, Hants., British, do hereby declare the nature of this invention to be as follows:—

- 5 A device working by compressed air and spring operated by plunger, fitted to side of door frame. The device is instantly adjustable in strength according to weight of door to be fitted, and for all windows that work on hinges. The device is constructed to hold firmly still any door or window when shut, so preventing rattle or involuntary movement.

- 10 The device consists of a small cylinder, within is a spring and at one end a loose plate the same diameter as the internal measurement of the cylinder, this is moved by a screw through the end of the cylinder, so that by screwing in the tension of the spring is increased, and screwing back the strength of the

spring is lessened, thus making instant adjustment to the desired strength. At the other end is a rubber headed plunger and at the end of the plunger within the cylinder is fitted a leather cup washer so that on the plunger being driven in by contact with the closing door it is resisted by the compression of air and the internal spring. The device is fitted to the top angle or other convenient part of the door frame and is intended for motor vehicle doors as well as for the household. When a door fitted with this device is closed the door is held firmly as it is in contact with the plunger head which is driven in against the compression of the internal spring, thus preventing rattle and involuntary movement. Dated the Seventh day of November, 1934.

J. W. CLAY.

COMPLETE SPECIFICATION

Anti Bang or Rattle Door Stop

- 40 I, JAMES WILLIAM CLAY, 55, Commercial Road, Bournemouth, Hants., British, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a check and anti-rattle device for hinged doors and windows of all kinds.

- 50 It has already been proposed to provide door check and anti-rattle devices comprising a cylinder, a spring pressed plunger in the cylinder and a presser head mounted at the free end of the plunger rod projecting from the cylinder, said presser head being applied to the door or window when closed by said spring and thus preventing rattle. It has also been proposed to provide means for adjusting the tension of the plunger spring.

The present invention has for its object to improve the cushioning action of the known devices and to provide a wide range or adjustment for the spring.

- 65 According to the invention, in a check and anti-rattle device for hinged doors and windows, comprising a cylinder, a plunger in the cylinder subject to the

action of an adjustable spring and a presser head mounted at the free end of the plunger rod projecting from the cylinder, the cylinder is air tight for the purpose of supplementing the action of the spring by air resistance or air pressure, as the case may be.

In this manner the resistance of the spring is increased by air resistance as the plunger is pressed inwardly by the action of closing a door or window, and the spring is assisted by air pressure in moving the plunger outwardly on the door or window being opened. It has been found that in the improved device a lighter and more resilient spring may be employed than in devices having vent holes in the cylinder, and that the cushioning action is much more gentle.

According to a further feature of the invention the spring is applied at one end to the plunger and at the other end it is supported by a disc disposed at right angles to and guided in the direction of the axis of the cylinder, said disc having a threaded central bore into which is screwed a threaded spindle coaxial with the cylinder and mounted rotatably, but in an axially immovable manner in the

end of the cylinder. The spindle has an outer knob or the like whereby it may be rotated for the purpose of causing said disc to be axially displaced in the cylinder, thereby compressing the spring or allowing it to expand for tension regulation. This arrangement allows of a wide range of tension adjustment without the adjusting screw sticking out of the bottom of the cylinder unduly, as in a previous proposition, wherein the spindle was screwed into the bottom of the cylinder and fixedly carried the supporting disc at its inner end.

One embodiment of the invention is illustrated by way of example in the accompanying drawing, wherein:—

Fig. 1 is an end view of the device fitted in the top angle of a door,

Fig. 2 is a similar view with the device fitted on the jamb of a door,

Fig. 3 is a longitudinal sectional view on the line 3—3 of Fig. 1, and

Fig. 4 is a cross sectional view, the outer casing being omitted.

Referring to the drawing, there is provided an outer casing K which has the cross sectional form of an isosceles triangle the vertex angle of which is a right angle, so that the device may be fitted in the top angle of a door, as shown in Fig. 1. The casing K need not necessarily be of this shape, as any other convenient form may be adopted.

The casing K has a bore adapted to receive the cylinder M which is fixed therein with the aid of a head screw cap O and a bottom screw cap N, as shown in Fig. 3. Mounted in the cylinder there is a plunger B which is clamped between two washers J on to the plunger rod A, which passes through the head cap O and carries at its free end a presser head or buffer C.

The plunger B is subject to the action of a coil compression spring H applied by one end to the inner plunger washer J and supported at the other end by a disc F guided axially in the cylinder on pins G. The disc has a tapped central bore into which is screwed a threaded spindle D mounted for rotation but being axially immovable with reference to the bottom cap N. The spindle D carries at its end extending from the cap N a knurled knob E, whereby it may be rotated with a view to displacing axially the disc F for the purpose of regulating the tension of the spring H. It will be seen that a wide range of adjustment is provided and that the only part of the

adjusting screw sticking out of the bottom cap N is the flat, unobtrusive knob E.

The device is mounted in the required position on a door or window frame with the buffer C extending in the opening direction of the door or window beyond the plane which the near face of the door or window would occupy when closed. Thus, when the door or window is closed the buffer C presses against it and effectively prevents rattle, also preventing banging during the closing action. It will be observed that the cylinder M is closed in an air tight manner and has neither vent holes nor valves, so that when the plunger B is pressed inwardly the resistance of the air is added to the resistance of the spring H which is light and very resilient. By this arrangement smooth and gentle action is assured. When the door or window is opened the expanding air assists the spring in moving the plunger into the inoperative position shown in Fig. 3.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. A check and anti-rattle device for hinged doors and windows, comprising a cylinder, a plunger in the cylinder subject to the action of an adjustable spring and a presser head mounted at the free end of the plunger rod projecting from the cylinder, characterized in that the cylinder is air tight for the purpose of supplementing the action of the spring by air resistance or air pressure, as the case may be.

2. A device according to Claim 1, wherein the end of the spring not applied to the plunger is supported by a disc disposed at right angles to and guided in the direction of the axis of the cylinder, said disc having a tapped central bore into which is screwed a threaded spindle coaxial with the cylinder and mounted rotatably, but in an axially immovable manner in the bottom of the cylinder and carrying an operating knob at its end projecting from the cylinder bottom.

3. A check and anti-rattle device for hinged doors and windows, substantially as herein described with reference to the accompanying drawing.

Dated this 7th day of November, 1935.
EDWIN C. AXE, A.I.M.E.,
27, Chancery Lane, London, W.C.2.,
Agent for Applicant.

[This Drawing is a reproduction of the Original on a reduced scale.]

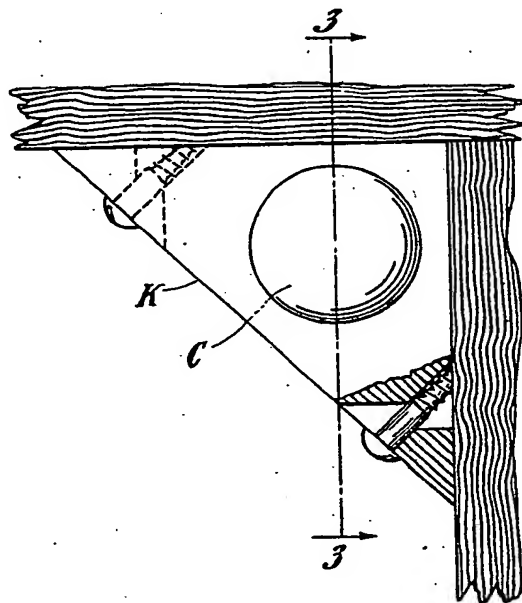


Fig. 1.

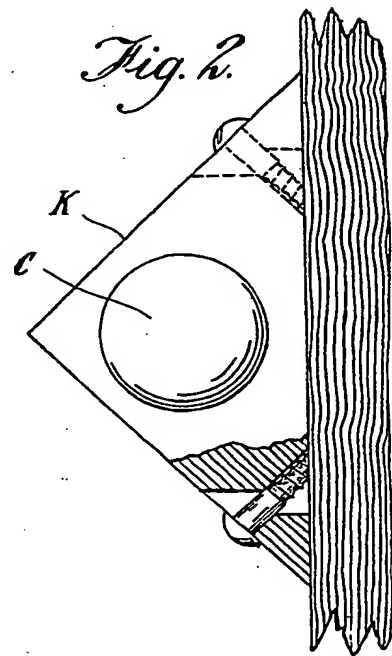


Fig. 2.

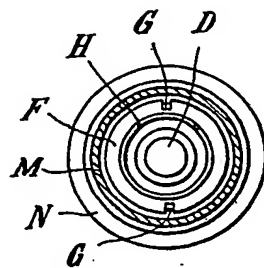


Fig. 4.

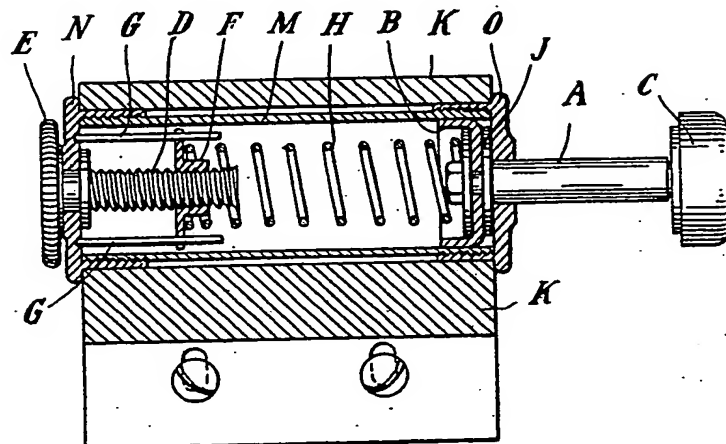


Fig. 3.

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